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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/124,805	07/29/1998	JOHN O. LAMPING	D/98205Q1	7115

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HAYNES BEFFEL & WOLFELD LLP
P O BOX 366
HALF MOON BAY, CA 94019

EXAMINER	
WANG, JIN CHENG	

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/124,805	LAMPING ET AL.	
	Examiner	Art Unit	
	Jin-Cheng Wang	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 16 July 2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 17-44 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 17-44 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Claims 17-44 are pending in the present application.

Response to Arguments

Applicant's arguments filed July 16, 2004 have been fully considered but they are not persuasive. As addressed below, Lamping et al. teaches the claimed limitations. Lamping discloses a method for laying out a node-link structure in a space with negative curvature; the method comprising obtaining nearby relationship data for a subject element in the structure, the nearby relationship data indicating information about nearby node-link relationships, the nearby relationship data excluding relationship with at least one element of the node-link structure (col. 17, line-20 to col. 18, line 50; Figs. 6-7); and based on only the nearby relationship data, and not on the position of any other element in the structure, obtaining layout data indicating the element's position relative to a parent in the space with negative curvature (col. 21. line 11 to col. 25, line 23: col. 16. lines 45-63; col. 32, lines 19-35, col. 25, lines 52-62, col. 4. lines 44-50; Figs. 5-7 and 17).

In other words, Lamping teaches a transformed position for each node in the node-link structure including those that are treated as too near the edge. He discloses obtaining layout data indicating a position in a layout space for each node in a node-link structure. *The layout space can, for example, be a hyperbolic plane or another appropriate space with negative curvature (col. 17, lines 30-35)*. He teaches initializing a current transformation that can be performed on the layout data to obtain transformed positions. The initial current transformation could, for example, be a null transformation that does not change the positions of the nodes in the layout

space. His system then performs the current transformation on the layout data to obtain transformed data indicating transformed positions for each node. Lamping teaches the step of the lower level node features that share a parent node feature having centers of area positioned in order approximately **along an arc** with sufficiently similar spacing from the center of area of the parent node feature corresponds to the step of obtaining layout data indicating the element's position relative to a parent in the space. The area of positioning the nodes indicates the element's position. In addition, the lower level nodes having a parent node correspond to obtaining the nearby relationship. In data structure, the parent and the child nodes (lower level nodes) are the nearest relationships between nodes. As for obtaining layout data based on the nearby relationship, Lamping teaches a node-link structure to obtain layout data. He teaches the layout of the data when he indicates the position of the nodes in a data structure.

In response to applicant's argument that the nearby relationship data is typically limited to relationships with elements only a short distance from the subject element in the node-link structure and the claim specifically says that they cannot include all elements of the node-link structure, Lamping teaches the claim limitations. For example, Lamping teaches in Fig. 15 a root node feature 566, a child node feature 570 whose descendants span a larger angle, a child node feature 572 whose descendants span a smaller angle, wherein the child node feature 570 excludes all elements in the child node feature 572. In data structure, the parent and the child nodes (lower level nodes) are the nearest relationships between nodes. Therefore, the nearby relationship data such as the child node feature 570 having grandchildren does not include all elements of the node-link structure. Specifically, it does not include the grandchildren of the child node feature 572. *From Fig. 15 of the cited reference, the node feature 570 is clearly placed along an arc*

with negative curvature and/or in a layout space with negative curvature. It is noted that a negative curvature is a concave curvature, as opposed to a convex curvature. A layout space along a selected arc of a circle can form a layout space with a negative curvature and node features can be placed along an arc of a circle. In contrary to applicant's arguments that Lamping's method is not a method of laying out a node-link structure in a space with negative curvature, Lamping teaches placing a node feature (or a node-link structure) in a layout space with negative curvature. Lamping clearly discloses obtaining layout data indicating a position in a layout space for each node in a node-link structure and the layout space can be hyperbolic mapping space. Lamping teaches that *the layout space can, for example, be a hyperbolic plane or another appropriate space with negative curvature (col. 17, lines 30-35)*.

In response to applicant's arguments that Lamping's method is not a method of obtaining layout data identifying the subject element's position in the space with negative curvature, Lamping teaches that each position on the unit (i.e., nearby relationship data) can be specified by a pair of x and y coordinates between -1 .0 to +1.0. In that the orientation step can change the manner in which *orientation of child nodes in relation to their parent changes in response to a click call*. For example, the act in box makes a call to DoNode for the next child with the child's handle and with the parent's position from the box. Thus, a sibling node with a large number of descendants has more room than a sibling with few descendants, so that root node feature had children with different nearest nodes spacing. In that when comparing child node feature whose descendants span a larger angle, with child node feature whose descendants span a smaller angle. As a result, grandchildren are more nearly the same distance from their grandparent than if the descendants of every parent spanned the same angle. Furthermore, each node at each lower level

having a parent node at a next higher level to which the node is related through one link... (and) a node-link structure to obtain layout data, indicating positions for pads of the node-link structure in a **layout space such as the hyperbolic space with negative curvature**.

In response to applicant's arguments with respect to the rest of claims that Lamping concerns node positions in the flat display space, not in the space with negative curvature as required, however, Lamping further discloses a space with negative curvature includes n-dimensional hyperbolic spaces, with a two-dimensional hyperbolic space being referred to as a "hyperbolic plane." In a hyperbolic plane, for example, a circle's area is proportional to an exponential function of its radius, making it easy to obtain a uniform layout for a node-link structure that has exponentially growing branches. A layout space with negative curvature is referred to as a "discrete approximation" to a hyperbolic plane or other continuous space with negative curvature if positions in the layout space are only specified with limited precision, so that every position in the layout space maps to a position in the hyperbolic plane or other continuous space with negative curvature but not vice versa. Turning specifically to the Figs. 14-16, Lamping teaches that layout data indicating positions of parts of a node-link structure such as the child node feature 570 of Fig. 15 being placed in a layout space with a concave or negative curvature. In a further note, the layout data can, for example, include coordinates indicating positions in the layout space. The layout data indicates positions in the layout space for each of a set of nodes that form a branch. For each of a set of parent nodes, *lower level nodes* that share the parent node *lie approximately along* a circle in the space or *along an arc of the circle having a negative value of the radius of curvature* while the parent node is positioned approximately at the center of the circle. The term "along a circle" includes an arrangement along an arc of the circle.

The positions of adjacent lower level nodes along each circle are separated by approximately a base spacing. The layout data indicates, for nodes in a branch, positions in *a layout space with negative curvature*.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Lamping et al. (US Patent No. 5,619,632).

Re claim 17, Lamping teaches A) a method of laying out a node-link structure in space with negative curvature (col. 16, lines 45-63: col. 25, lines 52-62, Fig. 15, 17 and 21). In the specification of the application, page 11 and lines 3-7, the inventors claim the space with negative curvature as a space in which parallel lines diverge...there are multiple other straight lines parallel to the given straight line. An example of a space with negative curvature is hyperbolic n-space. Another example of a space with negative curvature is a layout space along an arc of a circle with a concave or negative curvature. Therefore, Lamping teaches a negative curvature when he discloses placing node features along an arc of a circle with negative curvature. Moreover, Lamping indicated in Fig. 21 a layout space in which some two parallel branches associated with two node features diverge. Lamping further teaches elsewhere representation includes link features that are lines representing links between nodes in a node-

link structure and node features, some of which are rectangles with characters in them but others of which are intersections or ends lines as in figures 14-16. Particularly, figure 17 and 21 disclose negative curvature when there are parallel lines of parents and children nodes that diverge into many other nodes; B) obtaining nearby relationship data for an element in the structure, the nearby relationship data indicating information about nearby node-link relationships, the nearby relationship data excluding relationship with at least one element of the node-link structure (col. 17, line-20 to col. 18, line 50; Figs. 6-7).

In other words, Lamping teaches a transformed position for each node in the node-link structure including those that are treated as too near the edge. He discloses obtains layout data indicating a position in a layout space for each node in a node-link structure. The layout space can, for example, be a hyperbolic plane. He teaches initializing a current transformation that can be performed on the layout data to obtain transformed positions. The initial current transformation could, for example, be a null transformation that does not change the positions of the nodes in the layout space. His system then performs the current transformation on the layout data to obtain transformed data indicating transformed positions for each node; and C) based on only the nearby relationship data, and not on the position of any other element in the structure, obtaining layout data indicating the element's position relative to a parent in the space with negative curvature (col. 21. line 11 to col. 25, line 23: col. 16. lines 45-63; col. 32, lines 19-35, col. 25, lines 52-62, col. 4. lines 44-50; Figs. 5-7 and 17). Lamping teaches the step of the lower level node features that share a parent node feature having centers of area positioned in order approximately along an arc with sufficiently similar spacing from the center of area of the parent node feature corresponds to the step of obtaining layout data indicating the element's position

relative to a parent in the space. The area of positioning the nodes indicates the element's position. In addition, the lower level nodes having a parent node correspond to obtaining the nearby relationship. In data structure, the parent and the child nodes (lower level nodes) are the nearest relationships between nodes. As for obtaining layout data based on the nearby relationship, Lamping teaches a node-link structure to obtain layout data. He teaches the layout of the data when he indicates the position of the nodes in a data structure.

Lamping further teaches that *the layout space can, for example, be a hyperbolic plane or another appropriate space with negative curvature (col. 17, lines 30-35)*. Lamping teaches in Fig. 15 a root node feature 566, a child node feature 570 whose descendants span a larger angle, a child node feature 572 whose descendants span a smaller angle, wherein the child node feature 570 excludes all elements in the child node feature 572. In data structure, the parent and the child nodes (lower level nodes) are the nearest relationships between nodes. Therefore, the nearby relationship data such as the child node feature 570 having grandchildren does not include all elements of the node-link structure. Specifically, it does not include the grandchildren of the child node feature 572.

From Fig. 15 of the cited reference, the node feature 570 is clearly placed along an arc with negative curvature and/or in a layout space with negative curvature, wherein Lamping teaches placing a node feature (or a node-link structure) in a layout space with negative curvature. Lamping clearly discloses obtaining layout data indicating a position in a layout space for each node in a node-link structure and the layout space can be hyperbolic mapping space. Lamping also teaches that each position on the unit (i.e., nearby relationship data) can be specified by a pair of x and y coordinates between -1 .0 to +1.0. In that the orientation step can

change the manner in which *orientation of child nodes in relation to their parent changes in response to a click call*. For example, the act in box makes a call to DoNode for the next child with the child's handle and with the parent's position from the box. Thus, a sibling node with a large number of descendants has more room than a sibling with few descendants, so that root node feature had children with different nearest nodes spacing. Furthermore, each node at each lower level having a parent node at a next higher level to which the node is related through one link... (and) a node-link structure to obtain layout data, indicating positions for pads of the node-link structure in a **layout space such as the hyperbolic space with negative curvature**.

Moreover, Lamping teaches in Figs. 14-16 and 21 layout data indicating positions of parts of a node-link structure such as the child node feature 570 being placed in a layout space with negative curvature. In a further note, the layout data can, for example, include coordinates indicating positions in the layout space. The layout data indicate positions in the layout space for each of a set of nodes that form a branch. For each of a set of parent nodes, *lower level nodes* that share the parent node *lie approximately along* a circle in the space or *along an arc of the circle having a negative value of the radius of curvature* while the parent node is positioned approximately at the center of the circle. The term "along a circle" includes an arrangement along an arc of the circle. The positions of adjacent lower level nodes along each circle are separated by approximately a base spacing. The layout data indicates, for nodes in a branch, positions in *a layout space with negative curvature*.

Re claims 18-20 and 41, Lamping disclose: the space with negative curvature is a hyperbolic space (col.17. lines 28-44, col. 16, lines 5332: col. 20, lines 20-52). Lamping teaches

a negative curvature as a hyperbolic space when he discloses the layout space is a hyperbolic plane.

Re claims 21-23, 30-32, and 35, Lamping discloses the radii and angles for the set of children to obtain a position displacement and an angle displacement between the parent and the element (col. 23 and 24; Fig. 13).

Re claims 24, 33-34, and 36, Lamping discloses the nearby node-link relationships include only relationships among the parent and the parent's children and grandchildren (col. 25, lines 24-50: fin. 13).

Re claims 25 and 37-40, Lamping discloses the method is performed in each of a series of iterations (col. 19. lines 61-67: col. 20 and 21; fig. 12).

Re claims 26-27, the limitations of claims 26-27 are analyzed as discussed with respect to claim 17 above.

Re claims 29 and 42-u, the limitations of claims 29 and 42-44 are identical to claim 17 above except for calculating element's position in the space with negative curvature and storing the positions for each element...(col. 23. line 56 to col. 24, line 65; col. 16, lines 25-62; figs. 13-21). Therefore, claims 29 and 42-44 are treated the same as discussed with respect to claim 17 above. Lamping teaches implementing by calculating a radial gap for the position of each node, then comparing it with a limit to determine whether it is a position too close to the unit disk's perimeter. In preparation for a recursive call to DoNode, the system begins each iteration by setting the previous node feature's position to the position and by setting the previous position's radial gap to the radial gap calculated. These values are set locally within the iteration. Then, the system makes a call to DoNode for the next child with the child's handle and with the parent's

position. On a further note, the system can access instruction data stored in memory and transfer the instruction data over network to processor so that processor can receive instruction data from network. Instruction data can then be stored in memory or elsewhere by processor, and can be executed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (703) 605-1213. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jcw

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600